



Application No.: 09/781,073

AMENDMENTS TO THE CLAIMS

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Claim 1. (Withdrawn/Cancelled).

Claim 2. (Withdrawn/Cancelled).

Claim 3. (Withdrawn/Cancelled).

Claim 4. (Withdrawn/Cancelled).

Claim 5. (Withdrawn/Cancelled).

Claim 6. (Withdrawn/Cancelled).

Claim 7. (Withdrawn/Cancelled).

Claim 8. (Withdrawn/Cancelled).

Claim 9. (Withdrawn/Cancelled).

Claim 10. (Withdrawn/Cancelled).

Claim 11. (Withdrawn/Cancelled).

Claim 12. (Withdrawn/Cancelled).

Claim 13. (Currently Amended): A method of drilling a hole in a material, said hole to have a final diameter, comprising: the steps of:

generating a first high power percussive laser beam, said high power percussive laser beam being focused to a first high power percussive laser beam spot diameter that is slightly smaller than said final diameter of said hole,

directing said first high power percussive laser beam at said material to remove the bulk of said material to form a ragged hole having a diameter slightly smaller than said final diameter of said hole, said step of directing said first high power percussive laser beam at said material to remove the bulk of said material to form a ragged hole being accomplished by using said first high power percussive laser beam spot diameter to directly form said ragged hole without trepanning.

generating a second and trepanning laser beam, said second and trepanning laser beam having a spot diameter substantially smaller than said diameter of said hole, and

directing and trepanning by tracing said second and trepanning laser beam along said diameter and at said hole being formed for expanding said ragged hole having a diameter slightly smaller than said final diameter of said hole so that said hole is at said final diameter and for accurately cleaning up said ragged hole so that said final hole has said final diameter and has dimensions of high precision.

Claim 14. (Original): The method of drilling a hole in a material of claim 13 wherein said first laser beam is an infra-red laser beam.

Claim 15. (Original): The method of drilling a hole in a material of claim 13 wherein said second laser beam is a low power, short wavelength laser beam.

Claim 16. (Original): The method of claim 14 wherein said infra-red laser beam is produced by a laser operated in the ablative mode.

Claim 17. (Original): The method of claim 15 wherein said low power, short wavelength laser beam is produced by a laser operated in the trepanning mode.

Claim 18. (Original): The method of drilling a hole in a material of claim 13 wherein said first laser beam is an infra-red laser beam and said second laser beam is a low power, short wavelength laser beam.

Claim 19. (Previously Amended): The method of drilling a hole in a material of claim 13 wherein said second laser beam laser is focused to a spot a number of times smaller than the diameter of said ragged hole and said second laser beam is traced around the said ragged hole a multiplicity of times until there is little ragged material on the sides of said ragged hole.

Claim 20. (Previously Amended): The method of drilling a hole in a material of claim 19 wherein said second laser beam laser is focused to a spot from one to ten times smaller than the diameter of said ragged hole and is used to polish the sides of said hole to obtain high dimensional precision.

Claim 21. (Original): The method of drilling a hole in a material of claim 13 wherein said first laser beam is produced by a first laser and said second laser beam is produced by a second laser.

Claim 22. (Original): The method of drilling a hole in a material of claim 13 wherein said first laser beam and said second laser beam are produced by a single laser.

Claim 23. (Original): The method of drilling a hole in a material of claim 13 including controlling said first laser beam for rapidly removing the bulk of material in an area to form a ragged hole so that the final hole does not extend entirely through said material.

Claim 24. (Original): The method of drilling a hole in a material of claim 23 including controlling said first laser beam so that the final hole does not extend entirely through said material and said first laser beam leaves a thin membrane at the bottom of said hole.

Claim 25. (Original): The method of drilling a hole in a material of claim 24 including controlling said second laser beam so that said second laser beam breaks through said thin membrane at the bottom of said hole.

Claim 26. (Withdrawn/Cancelled).

Claim 27. (Withdrawn/Cancelled).

Claim 28 (Withdrawn/Cancelled).

Claim 29. (Withdrawn/Cancelled).

Claim 30. (Withdrawn/Cancelled).

Claim 31. (Withdrawn/Cancelled).



Claim 32. (Withdrawn/Cancelled).

Claim 33. (Withdrawn/Cancelled).

Claim 34. (Withdrawn/Cancelled).

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